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Research about the Correlation Between Attachment Style of Chinese Young People and AI Romance Willingness

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Abstract. With the rapid development of artificial intelligence (AI), the research findings suggest that users may form romantic relationship with AI and the individuals with varying attachment styles may turn to AI as a substitute to obtain emotional fulfillment typically derived from human relationships. However, few studies have explored why users fall in love with AI. Therefore, this research collect data based on Chinese Adaption of Experiences in Close Relationship Scale (ECR) and online questionnaire. Using the Pearson correlations analysis, the study determines the connection between AI romance willingness and attachment types. The study's findings indicate a strong positive relationship between AI romance willingness and the degree of attachment anxiety or attachment avoidance. AI romance willingness is positively correlated with an individual's attachment avoidance and anxiety levels. The result not only broadens the explanatory scope of the attachment theory but also provides certain feasibility for AI virtual lovers. However the study neither compared AI romance willingness across secure, anxious and avoidant attachment groups, nor employed a sample with sufficient representativeness to support the generalizable conclusions.

Keywords: Psychology, AI Romance Willingness, Attachment Style, AI companion, Intimate Relationship

1. Introduction

Nowadays, the artificial intelligence(AI) has improved with a high speed and has deeply changed the life style of people. Especially in terms of daily communication and emotional support, AI has rapidly integrated into these scenarios of digital social relationships. Generative AI is one of the important types of AI tools. This kind of AI can not only execute the commands that users input, but can also analyse and summarize the user requirements and provides a real-time response while dynamically adjusting the response content [1]. One observational feature of generative AI is that it can understand conversations and provide natural responses [2]. This means the users do not need any additional training to use these tools. The users can only input the instruction then get an answer like real human. According to these responses, users may experience a sense of presence which is similar to that encountered in social interactions when they interact with AI. Additionally, these AI tools can recognize the users' emotions and offer emotional support. The response that users can feel emotion may lead the user develop an emotional dependence on AI [3, 4]. When an AI system

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answers systematically to users, the users will experience responsiveness and a sense of companionship. At this time, the users may initially regard the AI as a companion that provides emotional support. With the time going, the users may gradually develop a stronger emotional dependence on the AI during more time of interactions. A part of users can even build romantic relationships with AI because the AI can be designed into any character based on different personal preferences and needs [5]. This means, AI can be a substitute item for fulfilling different social needs. However, the research has not fully explored the fundamental reasons why individuals desire to form romantic relationships with AI.

Attachment style is conceptualized as a construct comprising the difference of individuals in two core dimensions, attachment anxiety and attachment avoidance. Specifically, it refers to the different needs of individuals in the intimate relationships regarding security, emotional responses and interpersonal distance [6]. Attachment anxiety is characterized by heightened sensitivity to interpersonal rejection and a persistent fear of being abandoned by significant others, and the individuals with high attachment anxiety exhibit an acute fear of rejection and abandonment with a strong desire to establish the close relationships and gain recognition [7]. The AI can provide a continuous and emotionally supportive response for the individual with high anxiety level. High attachment anxiety may cause individuals more easily to fall in love with AI. For those with high attachment anxiety, AI companions may mitigate the perceived threat of rejection and abandonment. The attachment avoidance refers to the degree of individuals' fear of interpersonal dependence and intimate relationships and the degree of the lack of trust in the kindness or helpfulness of others [7]. The individual with high level of attachment avoidance also be attracted to AI companions easily because the AI can offer the response which is similar to human but not real human. This kind of relationship can offer a certain sense of interaction while reducing the interpersonal stress caused by self-disclosure and emotional responsibility. Research shows, when a individual lacks social support, the individual with higher social anxiety, loneliness and attachment anxiety are more likely to use AI as a substitute solution, while for the individuals with lower interpersonal skills, the social media can be a compensatory mechanism [3, 8, 9]. Attachment anxiety and avoidance shoe opposite patterns of association with social media addition [6]. The negative association may be attributed to the fact that social media platforms are populated by real individuals, precisely the kind of social actors that avoidant individuals tend to avoid. Moreover, for the avoidance users, an AI partner acts as a controllable, low-risks and consistently responsive companion [10]. In other words, individuals with different attachment style can gain the emotional value like human safely from AI. This suggest that the attachment style may affect the AI romance willingness of individuals.

2. Research question and hypothesis

The research question is whether the attachment styles of individuals influence the AI romance willingness. And the hypotheses are as follows:

H0: There is no correlation between attachment style and AI romance willingness.

H1: There is correlation between attachment style and AI romance willingness,

The individuals with high level of attachment anxiety will be more likely to engage in AI-driven romantic relationship;

The individuals with high level of attachment avoidance will be more likely to engage in AI-driven romantic relationship.

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3. Research method

3.1. Participants

A total of 119 questionnaires were distributed in this study and 82 valid questionnaires were retrieved. 37 questionnaires were excluded because they failed the attention test. The participant were all young Chinese individuals aged 17 to 30 (M=20.29, SD=2.26). The participants are recruited from social platforms Red Notes and Wechat, and the participants voluntarily participated in the survey. In the terms of gender, there are 60 females and 22 males. In terms of educational background, 8 participants have high school, vocational high school or technical high school degree, 6 participants have college or vocational college degree, 58 participants have a bachelor's degree and 10 participants have a master degree.

3.2. Research process

The study conducted the survey through an online questionnaire. The attachment style of the participants was measured using the Chinese Adaption of Experiences in Close Relationship Scale (ECR), and AI romance willingness was measured with one question ("I prefer to communicate with AI rather than human") [11]. Both the instruments employed with scale scored from 1 (strongly disagree) to 7 (strongly agree).

3.3. Analytic procedure

The research examine the linear correlation between attachment style(attachment anxiety and attachment avoidance) and AI romance willingness by using Pearson correlation analysis.

3.4. Tools

The research collect the online survey data using the Sojump(Wenjuanxing) online platform and then conducted statistical analysis of data using SPSS.

4. Result

Table 1. Pearson correlation analysis of attachment type and AI romantic inclination

		Anxiety_Mean	Avoidance_Mean	AI Romance Willingness
Anxiety_Mean	Pearson correlation	1	-.168	.251*
	Sig.(2-tailed)		.132	.023
	N	82	82	82
Avoidance_Mean	Pearson correlation	-.168	1	.313**
	Sig.(2-tailed)	.132		.004
	N	82	82	82
AI Romance Willingness	Pearson correlation	.251*	.313**	1
	Sig.(2-tailed)	.023	.004	
	N	82	82	82

*.*Correlation is significant at the 0.05 level(2-tailed).*
**.*Correlation is significant at the 0.01 level (2-taild).*

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The result of Pearson correlation analysis shows (Table 1), the level of attachment anxiety of individuals is significantly positively correlated with the AI romance willingness (r=.251, p=.023<.05), and the level of attachment avoidance of individuals is significantly positively correlated with the AI romance willingness (r=.313, p=.004<.05). The result of research support the research hypothesis that there is a positive correlation between the individual's attachment style and their willingness to engage in AI-based relationships.

5. Discussion

Findings confirmed that both attachment anxiety and avoidance were positively correlated to AI romance willingness. A significant positive correlation appeared between the level of attachment anxiety and willingness to engage in romantic relationships with AI (r=.251, p=.023<.05). This result confirmed the research finding that high attachment anxiety individual are more likely to use AI as substitute solution [3]. Generative AI is a readily available and promptly responsive tool, which can provide attention and responses continuously at any time and place. The feature of AI can satisfy the need of individual with attachment anxiety in the sense of security and reassurance. AI can analyse users' needs and responding emotionally, so for the individual with high attachment anxiety, they can avoid worrying about being rejected, neglected and abandoned in intimate relationships and the AI can become and emotional need satisfying tool for them and do not need to bear the costs of interpersonal relationships. It is also a noteworthy result that there is significant positive relationship between the level of attachment avoidance and AI romance willingness(r=.313, p=.004<.05). The AI companion is characterized as a controllable, low-risk and always responsive role [10]. This precisely avoids the fear of the individuals with attachment avoidance in pressure of self-exposure, demands of emotion and risk of losing control in intimate relationships. AI is a programmed tool but not a human being, so it has no real emotional needs. The social risk of exposing one's inner self with AI is low, and the users can stop or exit at any time with high level of controllability. For the individual with attachment avoidance, having a romantic relationship with an AI is a relatively safe alternative which can meet emotional needs while avoiding the costs brought by intimate relationship.

6. Limitation

The research only discusses the correlation of AI romance willingness with the individual with attachment anxiety and individual with attachment avoidance, but do not verify whether there is a certain relationship between individuals with other attachment types such as secure attachment. This means that the research lacks certain classification comparisons and lacks a low-risk attachment style control group to support the universality of AI romance willingness in general population. Further study are still needed to examine whether there are significant differences in AI romance willingness among individuals with different attachment style. Additionally, the amount of participants of this survey is small, and the proportions of female and undergraduate students are relatively high, so the representativeness of the sample is limited. If this conclusion can be applied to other age groups, cultural background or people with different educational levels still requires further verification. Moreover, the reliability is limited because a single question measured AI romance willingness. The study only research the correlation between attachment type and AI romance willingness but not exam whether potential variables would mediate the correlation between these two variable and not explore whether there is a certain causal relationship between these two variables.

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7. Further research

The research confirmed the correlation between attachment style and the AI romance willingness. To a certain extent, the application scope of attachment theory has expanded from traditional interpersonal intimate relationships to the scenarios of human-computer interaction and it also verify the attachment theory can be used to explain the building of some AI romantic relationships. At the same time, the study also provide certain ideas and basis for the design of virtual lover products. Designing different interaction models for users with different attachment style and exploring potential markets in terms of emotional needs. The further research can broaden the data of the sample in different age, culture and education background groups to verify the feasibility of this theory. Moreover, the study can not only rely on the method of questionnaire, but can also combine the behavior data like the frequency of using AI and the depth of interaction and so on to analysis the willingness of individual engage in romantic relationships with AI. Furthermore, an intermediary variable can be used to analyze the specific influencing mechanism f attachment types or the causal relationship between the two variables. For example, using the variable of loneliness and perceived social security as intermediary variables can be used to test whether individuals with insecure attachment style will turn to use AI for emotional compensation because they feel lonely or lack of social connections and have high level of sensitivity of rejection in reality. A longitudinal experimental design can be used to explore the causal path between the variables.

8. Conclusion

This research aims to find the relationship between individuals with different attachment styles and AI romance willingness. And the research data is used to evidence the individual with different attachment style have significant positive relationship with whether individuals are willing to have an AI romantic relationship. This study demonstrates that individuals with high levels of anxiety tend to have a higher inclination to have an AI romantic relationship, and the individuals with high levels of avoidance also tend to have higher inclination to have an AI romantic relationship. The study expands the explanatory boundaries of attachment theory and provide certain feasibility for AI virtual lovers.

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